Ann. Natal Mus. Vol. 29(2) Pages 433–446 Pietermaritzburg October, 1988

Collection of wild plant foods in Tembe Thonga society: a guide to Iron Age gathering activities?

by

A. B. Cunningham

(Institute of Natural Resources, University of Natal, P.O. Box 375, Pietermaritzburg, 3200)

ABSTRACT

Gathering of wild plant foods by Tembe Thonga agro-pastoralists is discussed with reference to coastal plain archaeological sites, which are characteristically poor in plant remains. Of the many edible plant species used today, only three species (*Sclerocarya birrea caffra, Strychnos madagascariensis* and *Parinari curatellifolia*) require preparation using durable materials which could indicate their past use.

INTRODUCTION

Plant remains are an important key to understanding gathering activities in the past (Deacon 1976, Sealy 1983) but in Natal, South Africa, deposits of plant material are restricted to dry caves and shelters (Davies 1975). No shelter or cave sites occur on the Maputaland coastal plain, which stretches to St Lucia Estuary in the south (28°23'S: 32°24'E) and high rainfall and leached sandy soils have ensured the removal of plant material from coastal plain archaeological sites. The 400 AD site at Enkwazini (28°11'S: 32°31'E) for example, has yielded valuable information on marine faunal exploitation (Hall 1980) but nothing on plant use. The constraints on subsistence agriculture posed by leached and drought susceptible sandy soils have not changed, with gathering of plant foods (Cunningham 1985), marine resources (van der Elst & Tregoning 1984) and fish trapping (Kyle 1986) playing important roles in the lives of Tembe Thonga agriculturalists today. Food gathering activities of present day subsistence agriculturalists can provide valuable insights into the lives of pre-colonial farmers. This paper discusses present day gathering and processing of wild plant foods by Tembe Thonga people in relation to interpretation of gathering within the Iron Age economy on the coastal plain.

METHODS

Records of plant use by people on the sandy coastal plain of the Ingwavuma district were made between 1980 and 1987, with records of all foods (fruits, gum, leaves, insects) and their seasonal availability made during a detailed study from July 1980 to July 1983. Interviews were done in the Sand Forest and Coastal Lake ecological zones (Fig. 1) during this period to determine which species had the greatest dietary importance (Cunningham 1985). The interview survey was done by field assistants using a simple questionnaire which allowed for digression and

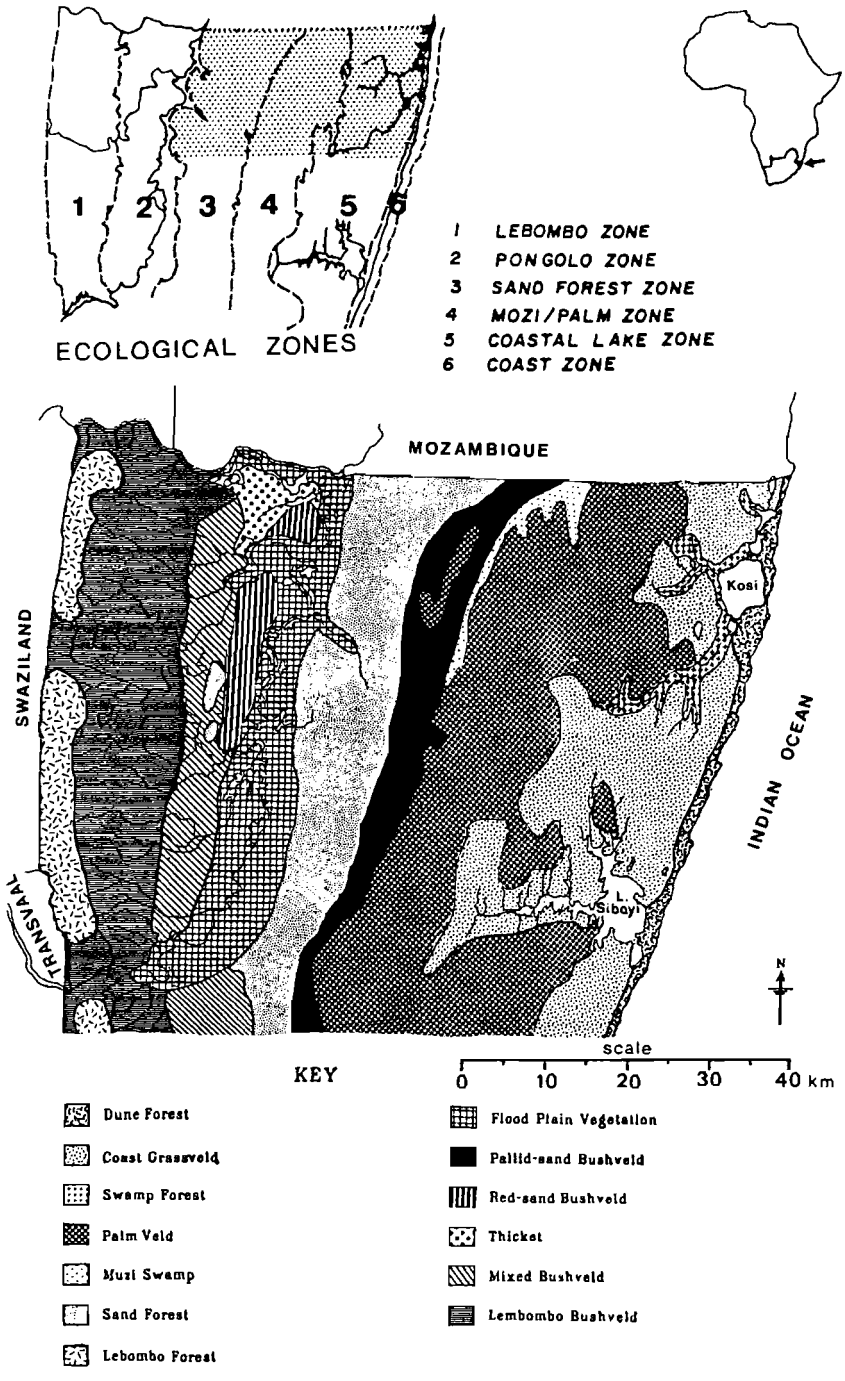

Fig. 1. The location, ecological zones and vegetation of the study area (from Moll 1980, Tinley & van Riet 1981).

discussion. Sample areas within the ecological zones were defined by the KwaZulu Health Department boundaries used by malaria control workers. Twenty percent (44) of the homesteads in the less densely populated Sand Forest Zone sample area (Health Dept. sub-units NG 1–10 and S 1–4) and 10% (73) of the homesteads in the more densely populated Coastal Lake Zone sample area (sub-units MP 6–9, KB 1–7) were surveyed. Voucher specimens collected were deposited at the University of Natal Herbarium (NU) and are referred to in Table 1.

RESULTS

Although a wide variety of fruits (77 species), spinaches (*imifino*) (27 species), and two edible gum producing species were identified (Table 1), only three species require special preparation with durable materials (stones, charcoal, bone) that would indicate their usage in archaeological sites. The preparation processes are (i) extraction of the kernels of *Parinari curatellifolia* and *Sclerocarya birrea caffra* fruits using a thorn or sharp sliver of bone (ii) cracking *S. b. caffra* nuts on a stone slab with a stone hammer (Fig. 2b) (iii) piercing the skin of *S. b. caffra* fruits whilst making beer (*ubuganu*) using short sharpened ungulate ribs (Fig. 2a, c) (iv) smoking of *Strychnos madagascariensis* fruit pulp. *Strychnos* fruits are collected in large quantity, the fruits cracked and the contents extracted to enable processing of the dried pulp (*anFuma* (Thonga (T)) or *ubuKwakwa* (Zulu (Z))) for storage. At the homestead the pulp covered seeds are placed on mats made of woven laths (*ashiCabha* or *ashiHandu* (T), *isiCabha* (Z)) and dried over a fire located inside a pit (*ashiYani* (T)) or a circular structure about one metre high also made of woven laths. Hardwood species are selectively used for fuel as sooty smoke from softwood species would discolour the pulp and give it a bitter flavour. *Newtonia hildebrandtii* and *Pteleopsis myrtifolia* wood is particularly favoured as it produces a minimal amount of smoke when burnt. Other species used for this purpose are *Dialium schlechteri, Hymenocardia ulmoides, Terminalia sericea, Strychnos madagascariensis, Syzygium cordatum, Combretum molle, Acacia burkei* and less popular, wood from *Albizia adianthifolia* and *Albizia versicolor*. When the pulp has changed to an orange-brown colour, but is still moist, it is separated from the pips with a sharp flat instrument. This is then sun dried before being dried over the fire a final time. The dried pulp is then stamped in a wooden mortar and may be mixed with honey (or sugar) before storage for as long as five years.

The widest range of fruit species is eaten by children (particularly herdboys). A relatively small number of the total available fruit species are collected for home consumption (Figs 3–4). This could account for the low number of species found at archaeological sites where preservation of plant remains has occurred. In contrast to the low number of fruit species collected for home consumption, most spinach species are cooked and are taken to the homestead (Figs 5–6, Table 1). Stored fruits (*Sclerocarya birrea caffra, Strychnos madagascariensis* and, to a lesser extent, *Vangueria infausta*), perennial spinaches, and the few available ripe fruits have increased value between July and September when agricultural pro-

Fig. 2. A. Women amidst piles of *Sclerocarya birrea caffra* fruits piercing fruits to make *ubuganu* (marula beer). B. Stone anvil and hammer in use to crack *Sclerocarya* 'nuts' to enable extraction of the kernel. The stone figured has been in use for 40 to 50 years. C. Bone tools of sharpened cow ribs used to pierce *Sclerocarya* fruits. D. *Parinari curatellifolia* fruits collected for their pulp and edible kernels.

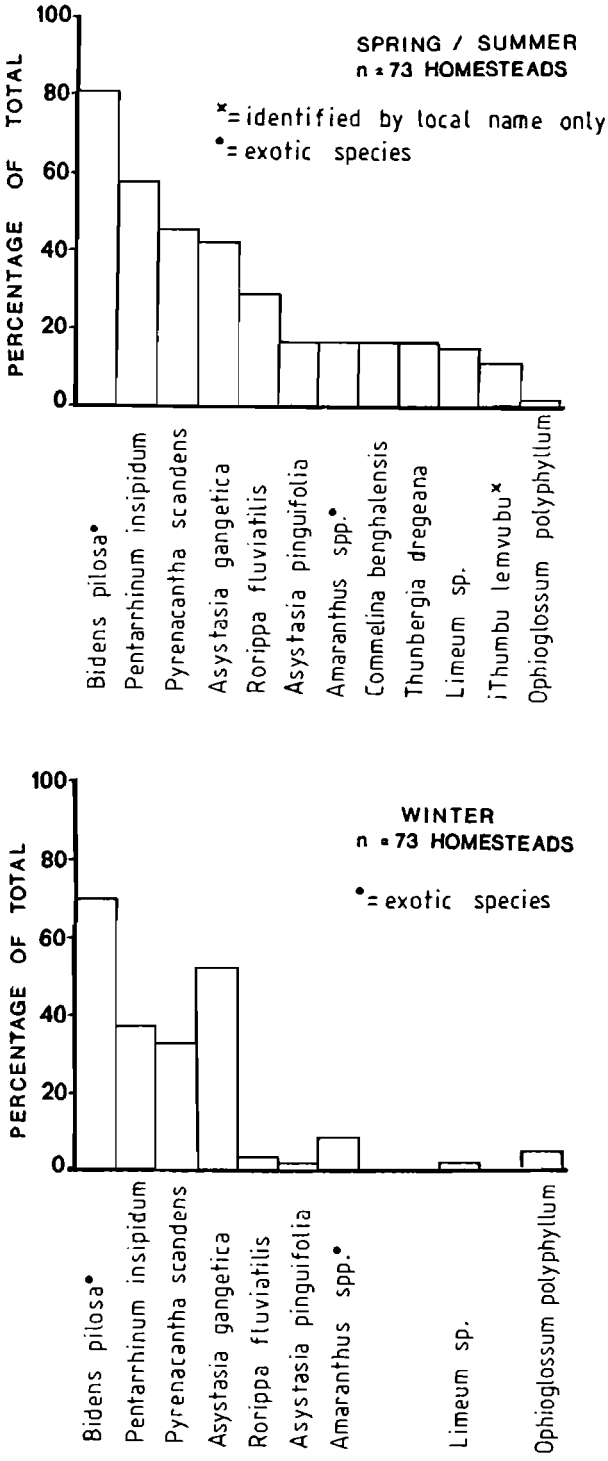

Fig. 3. Edible fruits collected for home consumption by respondents at 73 homesteads in the Coastal Lake ecological zone.

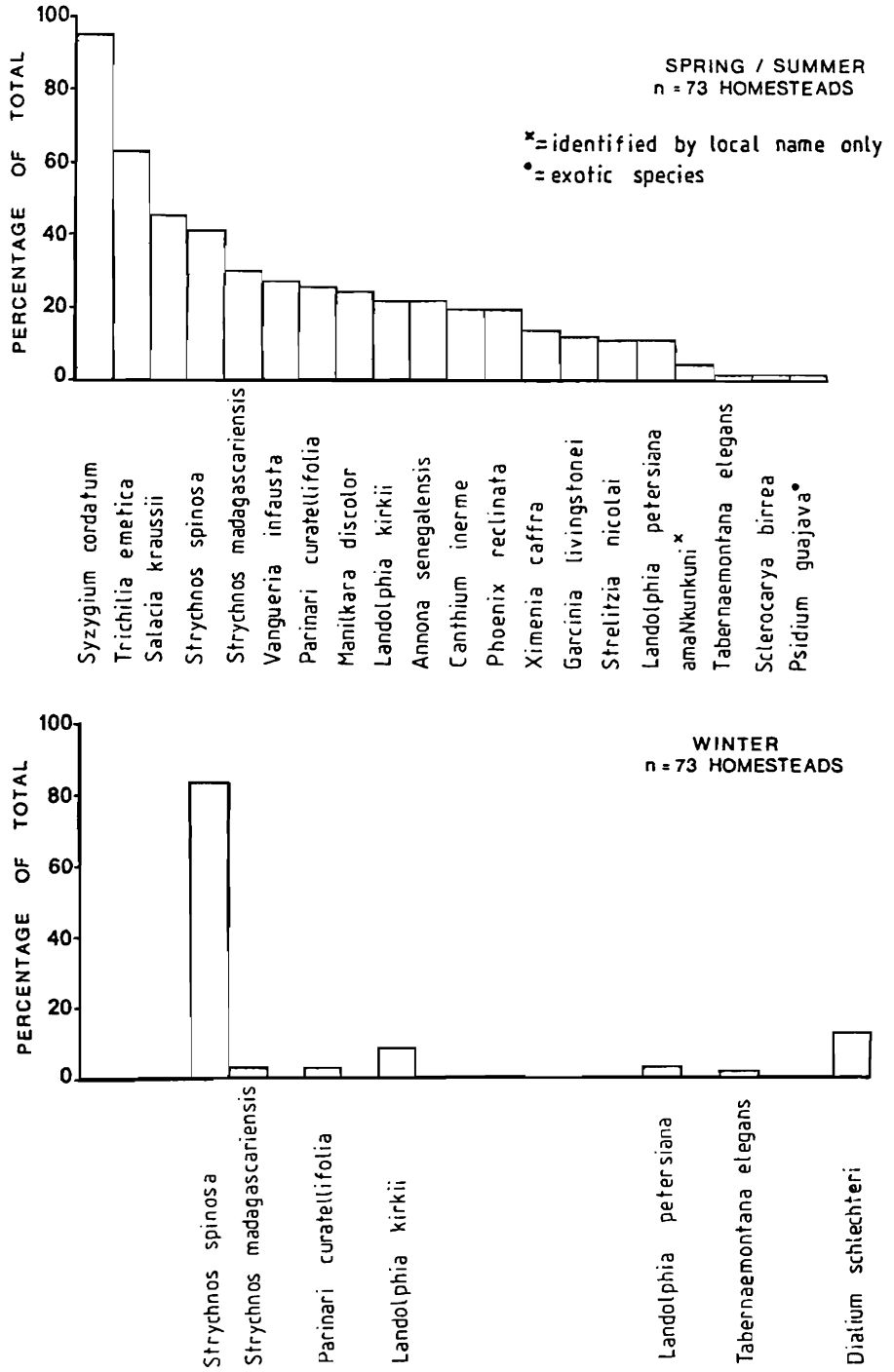

Fig. 4. Edible fruits and fungi collected for home consumption by respondents at 44 homesteads in the Sand Forest ecological zone.

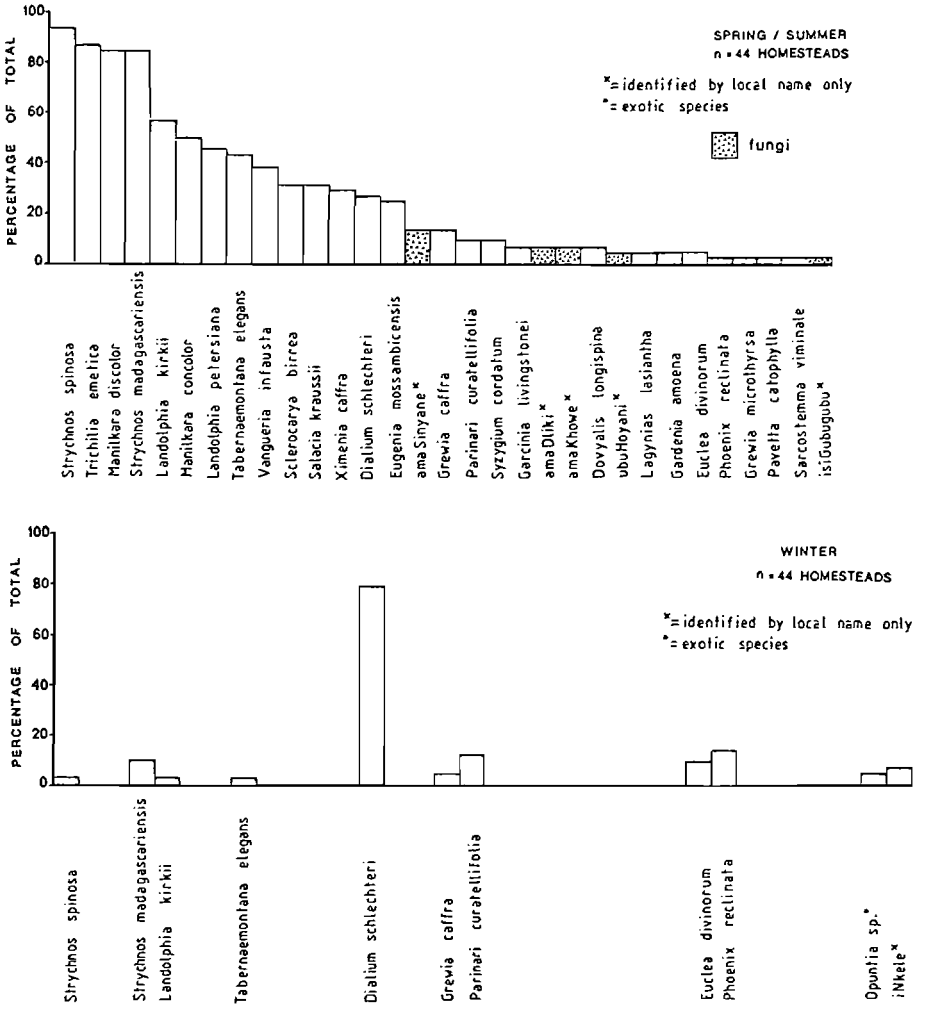

Fig. 5. Edible spinaches (*imifino*) collected for home consumption by respondents at 73 homesteads in the Coastal Lake ecological zone.

duction is low. Figs 3–4 reflect only the use of fresh fruits. *Parinari curatellifolia* and *Sclerocarya* 'nuts' are both important during this time of the year, however, as *Parinari* 'nuts' are one of the few wild food resources which are abundant, palatable, nutritious and easy to collect during this time and *Sclerocarya* 'nuts' are left over from beer making. In the Sand Forest Zone, 20,5 % (9) of homesteads sampled stored *Strychnos madagascariensis* pulp, compared to 4,1 % (3) in the Coastal Lake Zone due to present day reliance on store bought foods.

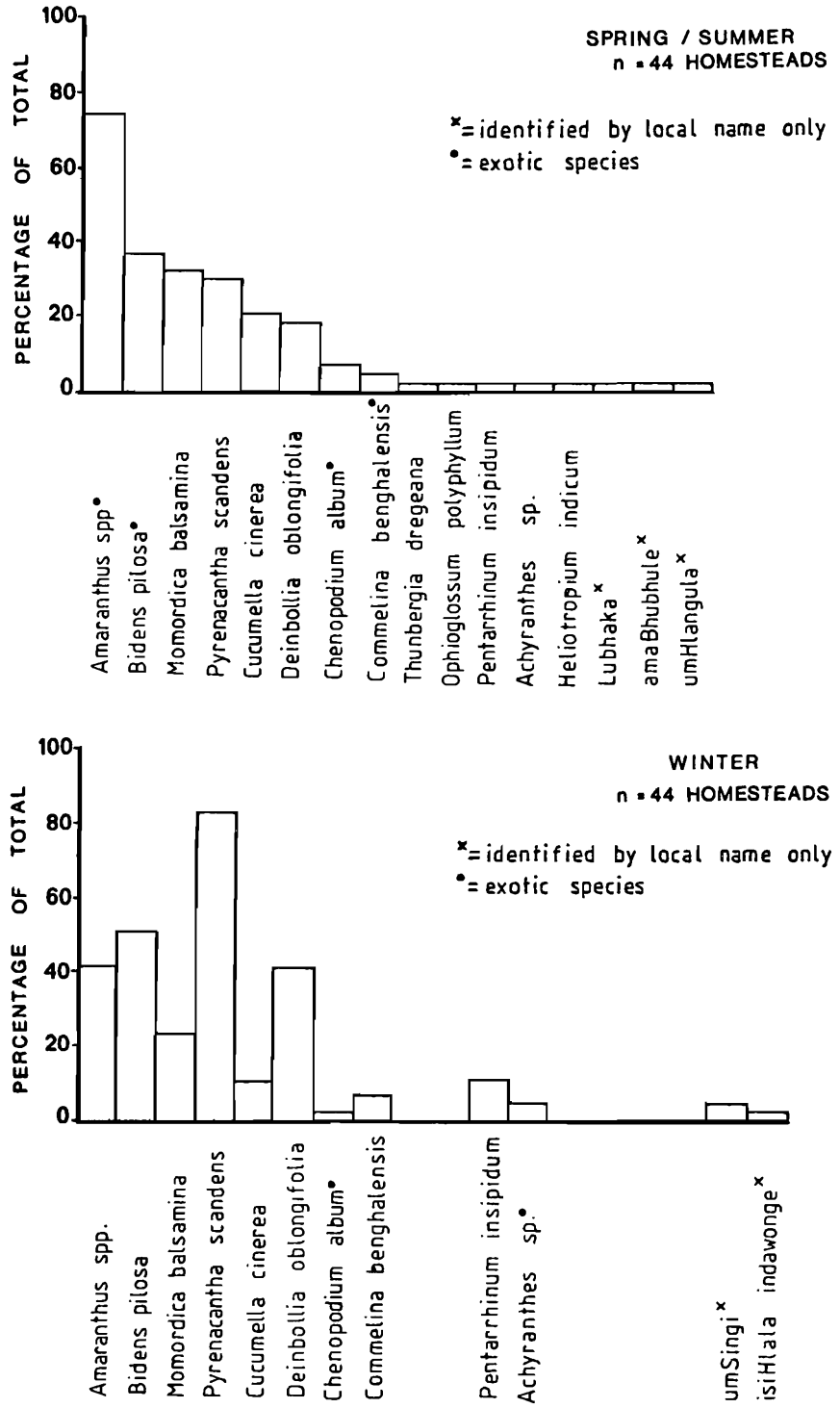

Fig. 6. Edible spinaches (*imifino*) collected for home consumption by 44 homesteads in the Sand Forest ecological zone.

TABLE 1

The seasonal availability and distribution of plant species recorded as food sources on the sandy coastal plain of the Ingwavuma district. Open circles represent leaf use, closed circles indicate fruit use and a divided circle shows the use of roots. The closed diamond shape in disturbed areas indicates species that are left in fields after clearing.

SPECIES AND PART EATEN		SEASON AVAILABLE	VEGETATION TYPE D=disturbed areas. P=palmveld. Grl=coastal grassland. Wtl=wetlands.							VOUCHER SPECIMEN
G=gum F=fruit L=leaves F(k)=fruit kernel S=shoot sp=sap		J F M A M J J A S O N D	D	COAST FOREST OR THICKET	SAND FOREST/ THICKET	SAVANNA	P	Grl	Wtl	
Acacia burkei	G	? ?				○				
Acacia nilotica	G	? ?				○				
Achyranthes sp	L		○							
Amaranthus hybridus	L		○							Cunningham 518NU
Amaranthus spinosus	L		○							
Amaranthus thunbergii	L		○							Cunningham 517NU
Annona senegalensis	F			●		●	●			
Antidesma venosum	F			●		●	●			Shaw 251NU
Asystasia gangetica	L		○	○						Cunningham 700NU
Asystasia pinguifolia	L		○	○						Balkwill 196NU
Asystasia schimperi	L		○	○						
Balanites maughamii	F,F (K)			●	●					Cunningham 2189NU
Berchemia discolor	F			●	●	●				Cunningham 513NU
Berchemia zeyheri	F					●				Shaw 150NU
Bidens pilosa	L		○							
Canthium inerme	F		◆	●	●	●				
Canthium obovatum	F			●	●	●				
Canthium setiflorum	F				●					Cunningham 520NU
Canthium spinosum	F				●					Cunningham 514NU
Capparis tomentosa	F					●				
Carissa bispinosa	F			●	●					
Carissa macrocarpa	F			●						
Chenopodium album	L		○							
Chenopodium opulifolium	L		○							
Chrysanthemoides monelifera	F		●	●		●				
Coccinia hirtella	L	?	○							
Coccinia rehmanni var. littoralis	L	?	○	○						Pooley 216NU
Commelina benghalensis	L		○							Cunningham 683NU
Commiphora neglecta	R			◑	◑	◑				Cunningham 2148NU
Cordia caffra	F				●					Pooley 1246NU
Cordia ovalis	F		◆		●	●				Pooley 683NU
Cucumella cinerea	L		○							Cunningham 406NU
Deinbollia oblongifolia	F, L		○	○	○					
Dialium schlechteri	F		◆	●	●	●				Cunningham 2195NU
Diopyros lycioides	F					◆				Cunningham 2172NU

TABLE 1 *(cont)*

The seasonal availability and distribution of plant species recorded as food sources on the sandy coastal plain of the Ingwavuma district. Open circles represent leaf use, closed circles indicate fruit use and a divided circle shows the use of roots. The closed diamond shape in disturbed areas indicates species that are left in fields after clearing.

SPECIES AND PART EATEN		SEASON AVAILABLE	VEGETATION TYPE D=disturbed areas. Grl=coastal grassland. P=palmveld. Wtl=wetlands.							VOUCHER SPECIMEN
G=gum F=fruit L=leaves F(k)=fruit kernel S=shoot sp=sap		J F M A M J J A S O N D	D	COAST FOREST OR THICKET	SAND FOREST/ THICKET	SAVANNA	P	Grl	Wtl	
Dovyalis caffra	F				●					
Dovyalis longispina	F			●	●					Pooley 286NU
Ehretia amoena	F					●				Tinley 332NU
Ehretia rigida	F				●	●				Tinley & Ward 30NU
Epinetrum delagoense	F				●	●	●			Tinley 989NU
Euclea divinorum	F			●	●	●	●			
Eugenia capensis subsp. albanensis	F				●	●	●			Pooley 233NU
Eugenia capensis subsp. capensis	F			●						Pooley 2127NU
Eugenia mossambicensis	F				●	●	●			Pooley 803NU
Ficus capensis	F								●	Tinley 235NU
Garcinia livingstonei	F			●	●	●				Cunningham 2200NU
Gardenia amoena	F			●	●					Cunningham 399NU
Grewia caffra	F			●	●					Pooley 743NU
Grewia microthyrsa	F				●					Tinley 428NU
Heliotropium indicum	L	?							○	Furness 96NU
Hoslundia opposita	F			●		●	●	●		
Hyphaene coriacea	F(p),S,Sp					○	○	○		Cunningham 2076NU
Inhambanella henriquesii	F			●	●					
Kraussia floribunda	F			●	●	●				Cunningham 372NU
Lagynias lasiantha	F		◆		●					Cunningham 402NU
Landolphia kirkii	F			●	●					Cunningham 2167NU
Landolphia petersiana	F			●		●	●	●		Cunningham 2151NU
Lantana rugosa	F					●		●		Pooley 1491NU
Limeum sp	L	? ?	○	○						
Manilkara concolor	F		◆	●	●					Cunningham 2149NU
Manilkara discolor	F		◆	●	●					Cunningham 2150NU
Mimusops caffra	F			●						
Mimusops obovata	F			●						
Monodora junodii	F			●	●					Cunningham 581NU
Momordica balsamina	L,F	?	●○		●○					Cunningham 388NU
Morus mesozygia	F				●					Moll 3183NU
Nymphaea capensis	R								◐	Edwards 2565NU
Nymphaea lotus	R								◐	Pooley 765NU
Ophioglossum polyphyllum	L		○					○		Cunningham 657NU
Pappea capensis	F					●				

SPECIES AND PART EATEN		SEASON AVAILABLE	VEGETATION TYPE D=disturbed areas. P=palmveld. Grl=coastal grassland. Wtl=wetlands.							VOUCHER SPECIMEN
G=gum F=fruit L=leaves F(k)=fruit kernel S=shoot sp=sap		J F M A M J J A S O N D	D	COAST FOREST OR THICKET	SAND FOREST/ THICKET	SAVANNA	P	Grl	Wtl	
Parinari curatellifolia subsp. mobola	F F (k)					●	●	●		Cunningham 2153NU
Pavetta catophylla	F				●					Tinley 414NU
Pavetta schumanniana	F				●					Pooley 787NU
Pentarrhinum insipidum	L		○	○		○				
Phoenix reclinata	F, Sp		●	●		●	●			Cunningham 2077NU
Plectroniella armata	F					●				Cunningham 759NU
Pyrenacantha scandens	L		○	○	○					
Rhoicissus digitata	F		●	●	●	●				
Rhus gueinzii	F				●	●				
Ruellia ovata	L		○							
Rorippa fluviatilis	L								○	
Salacia kraussii	F					●	●	●		Balkwill 493NU
Salacia leptoclada	F				●					Cunningham 500NU
Sarcostemma viminale	F, S			○	○					Moll 3170NU
Sclerocarya birrea subsp. caffra	F, F (k)		◆			●	●			
Sonchus oleraceous	L		○							Moll 4160NU
Strelitzia nicolai	F			●						
Strychnos madagascariensis	F		◆	●	●	●				
Strychnos spinosa	F		◆	●	●	●				
Synaptolepis kirkii	F		●	●	●	●				Cunningham 2156NU
Syzygium cordatum	F					●			●	
Tabernaemontana elegans	Sp , F			●	●					
Thilachium africanum	L				○					Moll 3184NU
Thunbergia dregeana	L		○	○	○					Cunningham 425NU
Trachyandra sp	L		○			○				
Trichilia emetica	F (aril)		◆	●		●				Cunningham 2143NU
Uvaria caffra	F			●	●					Shaw 281NU
Uvaria lucida	F				●					Cunningham 472NU
Vangueria chartacea	F			●	●					Tinley 900NU
Vangueria cyanescens	F				●					Pooley 916NU
Vangueria infausta	F			●	●	●	●			Cunningham 2176NU
Vitex patula	F				●					Shaw 288NU
Voacanga thouarsii	F, Sp								●	
Ximenia caffra	F			●	●	●				
Xylotheca kraussiana	F			●	●					Balkwill 669NU
Ziziphus mucronata	F			●		●				Pooley 422NU

DISCUSSIONS

In the 1960's, Felgate (1965 1982) observed that the equal roles played by food gathering and agriculture characterised Tembe Thonga subsistence activity. This would certainly have been the case with pre-colonial agriculturalists who would have depended on food from wild plant resources as well as fish and intertidal zone fauna. This would rarely be shown in archaeological remains with the use of only three out of over a hundred indigenous edible plant species leaving durable traces of their past use. Subsistence farmers living on the coastal plain today are reliant on indigenous plants as a food source, particularly during drought periods when few crops are available. Indigenous food plants contribute to dietary diversity, containing nutrients (vitamin C, nicotinic acid, amino-acids) deficient in early crop plants. *Eleusine coracana* (finger millet), for example, is a poor source of vitamin C and nicotinic acid (Cunningham 1985) as nicotinic acid occurs in its bound form (niacytin) in cereal crops and is unavailable for assimilation (Passmore *et al* 1974). Similarly, fish (*Mugil* species) which are commonly caught in the area (Kyle 1986) are a potentially good source of protein and nicotinic acid but a poor source of calcium, riboflavin and vitamin C (Cunningham 1985, FAO 1972). Indigenous fruit species such as *Landolphia kirkii, Landolphia petersiana, Ximenia caffra, Salacia kraussii, Vangueria infausta, Syzygium cordatum* and *Sclerocarya birrea caffra* which are commonly collected today would probably have been even more important sources of vitamin C in the past. Indigenous spinaches and the kernels of *S. b. caffra* and *Parinari curatellifolia* are particularly important wild foods today and can form a high proportion of daily intake amongst poor families. Due to their high protein and oil content (Ferrao 1960), *S. b. caffra* kernels and possibly those of *Parinari curatellifolia* are a useful source of protein to people with limited access to fish or intertidal zone resources. High tryptophan and lysine levels in some spinaches (Lewis *et al* 1971, Shanley & Lewis 1969) and high tryptophan levels in *Sclerocarya* kernels (Ferrao 1960) also increase the dietary importance of these items above that of foods with a high crude protein content deficient in these amino-acids.

Year round availability also increases the value of perennial spinaches and fruits which are stored. Most fruits and annual spinaches (*Bidens pilosa, Ophioglossum polyphyllum* and *Amaranthus thunbergii*) are only seasonally available, apart from spinaches growing in moist sites. *Asystasia gangetica, Asystasia pinguifolia, Asystasia schimperi, Pentarrhinum insipidum, Pyrenacantha scandens* and *Rorippa fluviatilis* are a source of food throughout the year. Due to lack of direct evidence for plant use from coastal plain archaeological sites, the importance of spinaches and freshly eaten fruits to people in the past can only be inferred from the high percentage of households collecting these resources today. *Sclerocarya birrea caffra, Dialium schlechteri, Ekebergia capensis, Strelitzia nicolai* and *Strychnos* species, for example, are all edible fruit bearing species eaten on the coastal plain today which Davies (1975) records from Shongweni-South cave.

Modern records of the use of durable items in food production can be valuable in interpreting remains from archaeological sites which might otherwise go unrecognised. The *Scolopia, Dalbergia* and *Acacia* thorns from Shongweni-South cave could, for example, have been used to extract *Sclerocarya* kernels rather

than for awls or arrow points as Davies (1975) suggests. Bone implements for extracting *Sclerocarya* kernels have been found in archaeological sites in the Transvaal (Palmer & Pitman 1972) but no published archaeological records of *Sclerocarya* 'nut' cracking stones or the sharpened rib bones used for piercing *Sclerocarya* fruits are known. Lee (1973) however records the same use of stones for cracking *Ricinodendron rautanenii* 'nuts' by !Kung hunter-gatherers in the Kalahari. Accurate interpretation of such remains within archaeological sites would improve our knowledge of the past uses of plant resources. It would also provide more detailed information on the effects of pre-colonial farmers on vegetation.

Recent debate on the role of pre-colonial farmers in changing vegetation has covered the effects of clearing on woodland and forest (Feeley 1980, Granger *et al* 1985), the formation of *Euclea divinorum* woodlands after felling of timber for charcoal production and iron smelting (Hall 1984) and *Cenchrus ciliaris* stands established on dung accumulations at settlements (Denbow 1979). Less attention has been given to the positive selective influence that agriculturalists may have had on populations of favoured (high yielding, palatable, synchronous fruiting) fruit bearing species due to their (i) maintenance in agricultural fields for fruit and shade despite the clearing of the surrounding vegetation for agriculture (particularly *Sclerocarya birrea caffra, Trichilia emetica, Manilkara concolor, Manilkara discolor, Strychnos spinosa* and *Strychnos madagascariensis* (see Table 1) (ii) dispersal and subsequent germination at homestead sites of popular fruit species able to germinate in exposed sites (commonly *Trichilia emetica* and *Sclerocarya birrea caffra*) (iii) changes in the sex ratios and possibly the fruit production of popular dioecious fruit bearing species (*T. emetica* and *S. b. caffra*) due to selective felling of male plants or female plants with low fruit yields (iv) the deliberate burning of coastal grassland, savanna and palmveld to induce fruiting of favoured edible species *(Salacia kraussii, Parinari curatellifolia, Eugenia capensis albanensis*) (v) the increased abundance of annual and perennial spinaches on disturbed soils due to agricultural clearing. Points (i–v) above all affect vegetation on the coastal plain today. The vegetation changes on species composition, vegetation structure and possibly fruit quality that this would have caused in the past 1 500 years underscores the comment by Feeley (1985) that the influence of Iron Age farmers on vegetation is more complex than is generally accepted.

ACKNOWLEDGEMENTS

I am grateful to the Tembe Tribal Authority for permission to do the ethno-botanical work. I would like to thank the many people within the Tembe area that have played a role in sharpening my perceptions about resource use and, in particular, Mr B. R. Gwala, Mr M. Gwala and the late Mr A. Vilane for many enjoyable discussions.

REFERENCES

CUNNINGHAM, A. B. 1985. *The resource value of indigenous plants to rural people in a low agricultural potential area.* Unpubl. Ph.D. thesis, University of Cape Town.

DAVIES, O. 1975. Excavations at Shongweni South Cave: the oldest evidence to date for cultigens in southern Africa. *Ann. Natal Mus.* **22** (2): 627–662.

DEACON, H. J. 1976. Where hunters gathered: a study of Holocene Stone Age people in the eastern Cape. *S. Afr. Archaeol. Soc.* Monograph No. 1, 232 pp.

DENBOW, J. R. 1979. *Cenchrus ciliaris:* an ecological indicator of Iron Age middens using aerial photography in eastern Botswana. *S. Afr. J. Sci.* **75**: 405–408.

FAO. 1972. *Food composition table for use in East Asia.* Rome: Food and Agriculture Organisation and U.S. Dept. Health, Education and Welfare.

FEELEY, J. M. 1980. Did Iron Age man have a role in the history of Zululand's wilderness landscapes? *S. Afr. J. Sci.* **76**: 150–152.

——— 1985. Smelting in the Iron Age of Transkei. *S. Afr. J. Sci.* **81**: 10–11.

FELGATE, W. S. 1965. An ecological study of the Tembe Thonga people. Unpubl. report on research work. Killie Campbell Memorial Library, Durban.

——— 1982. The Tembe-Thonga of Natal and Mozambique: an ecological approach. Ed. E. J. Krige, Durban: University of Natal. Dept. of African Studies. (Occasional Publications; No. 1.)

FERRAO, J. X. 1960. N'gongo (*Sclerocarya* sp.). *Agrinomia Angolana* (Luanda). **12**: 84–86.

GRANGER, J. E., HALL, M., MCKENZIE, B. & FEELEY, J. M. 1985. Archaeological research on plant and animal husbandry in Transkei. *S. Afr. J. Sci.* **81**: 12–15.

HALL, M. 1980. Enkwazini, an Iron Age site on the Zululand coast. *Ann. Natal Mus.* **24** (1): 97–109.

——— 1984. Prehistoric farming in the Mfolozi and Hluhluwe valleys of south-east Africa: an archaeological botanical survey. *J. archaeol. Sci.* **11**(3): 223–235.

KYLE, R. 1986. *Aspects of the ecology and exploitation of fishes of the Kosi Bay system, KwaZulu, South Africa.* Unpubl. Ph.D. thesis, University of Natal.

LEE, R. B. 1973. Mongongo: the ethnography of a major wild food resource. *Ecol. Food Nutr.* **2**: 307–321.

LEWIS, O. A. M., SHANLEY, D. M. G. & HENNESSY, E. F. 1971. The leaf protein nutritional value of four wild plants used as dietary supplements by the Zulu. *In: Proteins and Food Supply in the Republic of South Africa.* J. W. Claasens & H. G. Potgieter eds Cape Town: A. A. Balkema pp 95–102.

MOLL, E. J. 1980. Terrestrial plant ecology. *In: Studies on the ecology of Maputaland*, M. N. Bruton & K. H. Cooper eds. Grahamstown: Rhodes University and Durban: Wildlife Society of Southern Africa, Natal Branch pp 52–68.

PASSMORE, R., NARAYANA, M. R., NICOL, B. M., BEATON, G. H. & DE MAYER, E. M. 1974. *Handbook on nutritional requirements.* Rome: United Nations Food and Agricultural Organisation. (FAO Nutritional Studies; No. 28.)

SEALY, J. C. 1983. *Stable carbon isotopic assessment of prehistoric diets in the southwestern Cape, South Africa.* Unpubl. M.Sc. thesis, University of Cape Town.

SHANLEY, B. M. G. & LEWIS, O. A. M. 1969. The protein nutritional value of wild plants used as dietary supplements in Natal (South Africa). *Plant Foods in Human Nutrition.* **1**: 254–258.

TINLEY, K. L. & VAN RIET, W. R. 1981. *Tongaland: zonal ecology and rural land-use proposals.* Pretoria: S.A. Dept. Cooperation and Development.

VAN DER ELST, R. & TREGONING, C. 1984. The harvesting of intertidal fauna by subsistence gatherers and visiting fishermen on the Maputaland coast. *Oceanographic Res. Inst. Invest. Report* (in press).

Date received: 1 October 1987.